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Special Libraries

Vol. 11

APRIL, 1920

No. 4

The Perplexing Personal Name

BY JULIA CATHARINE GRAY

Librarian, School of Agriculture, The Pennsylvania State College

Some huge files are the outcome of the war. One of these is a card index of more than 5,000,000 enlisted men. The enlisted man is remarkable for the paucity of information which he supplies in his letters concerning himself. Records show that more than half the soldiers, sailors and marines have moved since they left the service. They fail to forward the new address, or their identification number; to attach the proper signature, sometimes any address or signature at all.

Sometimes the name is spelled differently at different times--sometimes four or five different ways by as many different members of the same family who write for information about the enlisted man. The Browns and Brouns, brought into connection by cross reference in this index, turned out to be mostly duplicates.

Mail received at headquarters goes through many different hands. Typists transpose and strike letters accidentally. Names are incorrectly copied on forms by clerks. A and r transposed will make a perfectly logical Gray or Gary, but these names will be somewhat remote from each other in a 5,000,000 index. Each time a name is copied the chances of error are multiplied.

All of the clerks handling this work of identification are women. Some are librarians and teachers, some are especially trained, others have an instinctive cleverness for juggling letters into semblances of names. A lively imagination is of great benefit, for the work keeps one guessing. Here is opportunity to use in full measure one's knowledge of languages and foreign names.

A typical example of the puzzles en-

countered occurred in a letter from an army camp. No such name as "Private Divis Spruce" showed in the index. A letter addressed to that name at Hastmes, Pa., was returned unclaimed. A clever girl studied "Divis Spruce" until she evolved from it "Spruce Division. Sure enough! A division of the army! A search among 40,000 names on the Spruce Division register revealed "Herman Miller, Hastings, Pa.," who confessed to the failure of signing his name.

Some of the collections represent small armies in themselves. The John Johnsons with the variants Johnston and Johnstone are more than 2,000 strong. Over 3,000 Smiths answer to William; over 2,500, to the name John. There are 1,200 non-descript "E Smiths." The John Browns are an even 2,000 in number. The other Browns and the Jones family are a close second to the foregoing with the Millers, Williamses and Walkers in hot pursuit.

"C. E. Johnson" would mean a search of more than 6,000 cards; "J. W. Smith," 14,000. Further complications arise through the long list and varied spellings of nicknames—Charlie, Charley, Willie, Willey, and so on.

It is for the psychological expert—the "nut picker" as the encamped soldiers dubbed him—to determine the mental processes behind the freakish names. Of these there is a creditable display. The picturization of the personal name might bring out some interesting bits of realism. The mental cinema works automatically on such material.

However, "Fate may have sought to conceal him by naming him Brown," E Pluribus Brown will always stand forth as one out of

many. Asad Experience Wilson strikes a sympathetic chord. One naturally desires to know whether, for short, he was called "Sad" or "X." Owen Money suggests a condition of perpetual indebtedness under the ban of community scorn. Please Hatch visualizes the attitude of the persuasively patient housewife toward the autocratic sitting hen. Huckleberry Shell reminds us that "Huck Finn" and Tom Sawyer" once had a long list of admirers. The riddle of Anglycal Anglyeous Barrister is beyond surmise.

Was the progenitor of Pullman Palace Carr a porter on that modern vehicle de luxe? Did one Orange Cobb tend citrus groves in the far South? Or was he more likely known by the fruits he vended on Manhattan's East Side? Also on his attainment to fatherhood, did he perhaps view himself as the recipient of an acid fruit, and

thus name his son Lemon? Certain it is that Lemon Cobb appears in this index as the bona fide son of his father Orange.

Like all tales that are told by indexes this one has its mystery, thus far as evasive of solution as that of "The Lady or the Tiger." Isaac Didnot Butcher floats serenely to the surface periodically, but none has ever yet got Isaac's number or address. Information is not forthcoming as to whether Isaac stubbornly refused to butcher at all, or whether he merely refused to butcher on a certain day? Was it because he shabbed out of the butchering fest, and feared to meet the scorn of his neighbors thereupon, that he vanished entirely?

"What's in a name?" Is no mere dry-as-dust platitude in the work of identification. On the contrary it is about the liveliest problem of this big index.

A Special Library That Encircles the Globe

BY FORREST B. SPAULDING

In Charge of Merchant Marine Dept., A. L. A. Library War Service

A library system or service to what might be termed a new industry can logically claim the interest of readers of Special Libraries, hence the title that has been selected to introduce this story of A. L. A. service to the American Merchant Marine. An outgrowth of library service to transports manned by Navy crews which the American Library Association instituted during the war, this service has now been extended to all ships of the Merchant Marine flying the American flag. Collections of books at the time of writing have been placed on board 1500 vessels.

The placing of books on board ships for the use of the crew is by no means a new thing. As early as 1859, the "Loan Libraries for Ships" was founded in New York and this institution, supported entirely by contributions from those interested in the welfare of seamen, can possibly lay claim not only to instituting one of the earliest systems of Traveling Libraries but to being one of the pioneers in the ranks of Special Libraries. This and similar institutions located in seaport cities have for years provided a

sensible, worthwhile and fairly adequate book service to the men of merchant ships.

Within the past two years, however, the unprecedented rapid growth of America's Merchant Marine has outdistanced the plans and facilities of all institutions engaged in welfare work for seamen. In this short space of time the United States which before the war could boast of no Merchant Marine worthy of the name, has come to occupy the foremost position among the nations of the world in the building of ships. The United States flag is now for the first time in history becoming a familiar sight in the great seaports of the world, and the dream of years, "American cargoes, mails and passengers carried in ships built, owned, operated, and manned by Americans, ships classified and insured by American companies, equipped and repaired by American industry," is becoming an actuality.

The work of the American Library Association during the war proved conclusively the value of books not alone for educational and informational use, but as a means of sustaining the morale of groups of men dur-

ing their hours of inactivity. These hours of inactivity on the long sea voyage are many, as the ocean traveller can attest, and the passenger on an ocean liner who has devoured with eagerness the longest books of the ship's library can realize the value of reading material in the cramped quarters occupied by the crew.

Demands which have come from seamen themselves indicate that novels to while away the time at sea are by no means the only books wanted. The average boy who goes to sea is inspired to adopt this romantic calling by an imagination not possessed by many of his fellows who elect to stay on land, and such imagination leads, when once the reading habit has been acquired, to exploration in every field covered by the writers of books. Moreover in the Merchant Marine as now organized there is a definite chance of promotion and advancement through every grade of the service from that of cabin or mess boy to that of licensed master. Experience gained at first hand supplemented by the information contained in manuals and books on various technical phases of navigation, of which there are legion, open the door of the job higher up, and seamen have been quick to recognize this fact, judging from requests for specific books, received by A. L. A. representatives in the various ports.

The value of this service has been seen and the work of the department has been most enthusiastically endorsed by ship owners and operators as well as by such organizations as The National Marine League, and the Recruiting Service of the United States Shipping Board. As is well known the plans of the A. L. A. do not contemplate maintaining permanent service under the administration of the Association. This service to the Merchant Marine is being organized with the expectation that when the need for it has been practically demonstrated it will be taken over and financed by some organization now in existence or later to be built up, and supported by the owners of shipping companies who will derive the indirect benefits of the service.

For the present, with the approval of the Committee of Eleven, having charge of the expenditure of the United War Work Fund, the work is being organized with money

from this fund in the hands of the A. L. A. Judging from the experiences of the Association in placing library service to the Army and Navy upon a permanent basis, it will be at least two years or possibly even three years before the service can be built up to a point approaching perfection and turned over to other hands for maintenance on a permanent basis. Therefore Merchant Marine service is one of the planks in the service program proposed by the Committee on Enlarged Program of the A. L. A. for which the two million dollar "Books for Everybody" fund will be raised during the coming months. It is expected of course and some assurance has been given that liberal contributions to this fund will be made by those financially and otherwise interested in the nation's enlarged shipping program.

The organization of the Merchant Marine Department of the A. L. A. consists, in addition to the headquarters in New York, of five dispatch offices, at the largest ports on the Atlantic, the Pacific and the Gulf of Mexico, as well as paid representatives in all other important seaport cities, generally working under the joint supervision of the Department and of the local Library or Library Commission. It is planned in the future to inaugurate service points by co-operation with the Foreign and Insular Branch of the American Red Cross, the Consular Service, or Clubs and Associations for American seamen as organized, in the principal seaport cities in Foreign countries. Further plans provide for the deposit of selected libraries for seamen in ten or twelve of the principal seaport cities from which seamen may borrow specific books that they desire direct, or from which, such single books may be sent by mail to men on ships which have touched at nearby smaller ports. In the main, however, the boxed ship's library, exchangeable at any port for another similar collection will be the unit of service.

Already A. L. A. books have followed the flag of the Merchant Marine around the globe. These "Special Libraries" have proved that they fill a definite need, and therefore the Merchant Marine Department feels itself warranted in seeking the interest and approbation of the members of the Special Libraries Association.

Library Service for Boston Department Store Employees

On October 6, 1919, Mr. Charles F. D. Belden, Librarian of the Boston Public Library sent the following letter to the members of the boards of trustees of the neighboring towns and cities of Boston, Mass., suggesting a co-operative library service for the employees of two of Boston's large department stores. The plan suggested was in the nature of an experiment, the respective libraries to make deposits of books in proportion to the number of persons resident in the particular town and employed in the particular store. The librarians were not asked to supply technical literature, it being recognized that the employer sufficiently interested would be glad to do this for his employees; it was suggested, however, that general literature and entertaining fiction be supplied.

The nature of the experiment and the conditions prescribed are a tribute to the good sense and practical idealism of Mr. Belden. Special librarians in Boston have faith in him both because he knows what he is about and because he always "plays square."

The replies received indicated that the experiment could not be held at this time because of lack of funds of the libraries affected. The plan, however, is worth attention.

Below is quoted Mr. Belden's letter to the Boards of Trustees of the surrounding neighborhoods explaining the plan:

"To the members of the Boards of Trustees of the Public Libraries of Arlington, Brookline, Belmont, Chelsea, Cambridge, Everett, Lynn, Malden, Medford, Melrose, Newton, Quincy, Revere, Somerville, Winthrop, and Watertown.

"One of the social effects of the war is an increased interest on the part of large employers in making working conditions more attractive for their employees. Certain of the more progressive firms of Boston are actively initiating plans for betterment. One measure under consideration, of special interest to libraries, is the furnishing of entertaining and stimulating reading matter at the place of employment. It seems apparent that any employer interested in such

an enterprise will be glad to supply the technical literature of his own business, but it has been found that there is also need for general literature and entertaining fiction. This, the employer feels, should be available in the form of deposits from the public library.

"Inquiry has served to emphasize the already well-known fact that a large percentage of the employees of the large retail stores and other industries are residents of suburban towns and cities. There are, for instance, in the employ of the Jordan Marsh Company, 250 residents of the city of Somerville. More than 1800 employees of this firm live in suburban towns. It is obvious that to furnish reading matter to so many non-residents from the resources of the Boston Public Library is a disproportionate and prohibitive burden.

'At the request of Mr. Charles F. D. Belden, the librarians of greater Boston recently held a meeting to consider the problem and selected a representative committee to ascertain whether it is possible to secure co-operative action among librarians, the welfare of whose own clientele is immediately affected. As an attempt at a solution of this problem, the committee respectfully submits for your careful consideration the following proposal:

"That your library join the libraries of greater Boston in a limited experiment, say at Jordan Marsh's and Filene's, under the following conditions:

"(a) Your library to make a small deposit of popular and readable books, the number to be proportioned to the number of employees who are residents of your town or city, and this proportion to be determined by a committee of librarians, with the approval of your librarian.

"(b) The employee using the deposit to be required to register at his or her home library and present a home library card as a credential at the deposit station.

"(c) The employee to have the privilege of borrowing any book in the whole deposit regardless of the source; that is, your library may make a deposit of twenty-five or fifty books, as the case may be, but your borrower will have access to the whole collection of several hundred.

"(d) Circulation of books to residents of

your town to be reported to you for inclusion in your circulation report.

"(e) The firm to whom the books are lent to be responsible for the books, and for all expenses of their transportation, maintenance, supervision and management. Your library, however, to lend, not to any firm, but to the Boston Public Library which will act as the distributing agent. Such loans are authorized by Chapter 118, Acts and Resolves of Massachusetts, 1914.

"The committee will welcome suggestions or requests for further information.

"If desired, lists of residents of your town or city employed at Filene's or the Jordan Marsh Company will be furnished.

"You will be interested to know that the Trustees of the Boston Public Library have informally authorized the Librarian to do everything in his power to make this co-operative experiment a success.

"A reply by October 31 will be appreciated.

"Address: Mr. Charles F. D Belden, Committee on Co-operative Loans, Boston Public Library.

"October 6th, 1919."

The Relation Between the Library and the Schools

(Below we print an announcement issued by the School Department of the Newark Public Library. It explains briefly what the library can do for the teacher and what the teacher may in turn do for the library. In reading this article, it may be well to refer back to another by Miss Grace E. Winton, Librarian of the Cass Technical High School Library, Detroit, Mich., which appeared in the October, 1919 issue under the title "The High School Library as a Special Library.")

(a) Why Teachers Should Know the Resources of the Library

1. The place assigned the Public Library by general consent is that of an integral part of our system of public and free education. 2. Schools and Library, as two branches of one system, must work together. Each in its own field supplements the work of the other. 3 To accomplish this most economically and to the greatest advantage, each must know the activities and possibilities of the other.

(b) The Field of Each

1. The school, during a short period of the child's life, within well-defined courses, teaches how to read and, so far as time and

course allow, what to read. For most pupils the results are at best meagre. The reading habit and skill in reading are both acquired by much reading and usually only thus. Few children ever learn to read readily—with understanding. 2. The library must supplement the school reading by promoting extensive reading during school years when children are the greatest readers, and through life. This demands cordial relations and intelligent co-operation between schools and library authorities, between teachers and librarians.

(c) Help Teachers May Expect from the Newark Library.

1. Books which may be borrowed for a month. Cards are issued to non-resident teachers in Newark schools

2. Magazines; 1270 in the library. Extra copies of educational magazines subscribed to for circulation to teachers.

3. Picture collection. Includes 515,000 pictures. Special collections of pictures have been gathered for geography, history, holidays, seasons, birds, flowers, etc.

4. Visual aids. 2,000 objects lent by the Museum for class room use. Includes models of a log cabin, Indian tepee, mediæval castle, Plymouth 1620, dolls in costume, industrial processes, physiological models, minerals, birds, relief maps, etc. A complete catalog is distributed to teachers.

5. Special lists of books on art, sciences or other specific subjects of interest to teachers. Examples: nature study—supplementing books, short stories for reading aloud, stories to tell, books about the American Revolution, etc., for distribution.

6. Books in school rooms: traveling school libraries. The teacher makes the request and chooses the books herself, or the library selects them for her. A library includes from 25 to 40 books, a certain per cent of which usually bear on school work. For aid in the selection of books for school-room libraries the Newark Library has prepared a list

7. Reference work at the library. Books, pictures, magazine articles on certain topics given prominence in the school work are temporarily reserved at the library. Examples: chivalry. Newark Administrative De-

partment, Police Department, water supply, Greek life, etc.

8 The Lending Department contains: a professional library for teachers, including books on methods of teaching all subjects, books for university extension courses and for teachers' promotion examinations; a large collection of economic and political maps which may be used in school rooms; duplicated copies of poems for class use; a collection of text-books used in Newark and elsewhere; material for use in celebration of all special days; a reference collection of poems, readings and recitations; plays suitable for school use in all the grades; leaflets for class room use for the study of the history, government and industries of Newark.

9. The School Department contains a model library of the best books for children, for the reference use of teachers and to serve as a basis for the selection of school libraries. It is the business of the assistant in charge of the School and Children's Department to be informed on all school matters of the city and to further the work of schools and teachers in any way that she can.

(d) What Teachers May Do for the Library.

1 Know what there is in a library for teachers and pupils.

2 Keep the library informed of school work and give early notice of work to come, so that the library may be better prepared to give assistance.

3 Use great care in recommending books for children. There are many lists in the school department to help teachers in the selection of books for children.

4 Give children specific instructions about the subject or book desired when sending them to work at the library. Their wants can then be met more promptly and accurately. They go about the work more intelligently.

5 Teach the care of books belonging to the school as well as to the library. Teach children to use care in opening a new book, never to lay a book face down, or to turn a leaf corner, or mark or underline; to have clean hands. Teach the use of the printed parts of the book, the table of contents, in-

dex, etc., correlating it with subjects in the regular course of study. The library has books and pamphlets giving methods of presenting the matter to children.

The Iowa State Library

By ARTHUR J. SMALL, Law Librarian,
Iowa State Library.

The day of the side street and second-story back room Library is obsolete in nearly every community in this state. Iowa has a population ranking first in literacy in the United States. In every small town and some of the larger ones as well, including schools and colleges, the State Library Commission is doing a great work in wielding a great influence toward Library activities. The libraries and schools are becoming social centers; reading is becoming a habit and information is eagerly sought. Iowa is awake to the desires and needs of its citizenship, though no direct state aid is given to Public Libraries other than given by the Library Commission and Traveling Libraries, and limited co-operation from the State Library which is located at the seat of government.

The State Library had its conception in 1838, when the government gave the sum of five thousand dollars for its establishment. The Library is divided into three departments, namely: Miscellaneous, consisting of literature, art and science, the Law and Legislative Reference Department contains the law documents, both State and National, (except scientific), works on economics, sociology and political economy; the Historical Department specializes in history and genealogy and includes a section of archives.

The Law and Legislative Reference Department is located in the Capitol, the other two departments including the Library Commission are housed in the Historical Building across the street. The Library Commission is under a separate board.

The Miscellaneous, Law, and Historical Departments, are under the general supervision of a board consisting of the Governor, the Secretary of State, the Superintendent of Public Instruction and the Judges of the Supreme Court. Each of the three depart-

ments has six thousand dollars appropriation, exclusive of salaries. The Legislature in 1919, created a Medical Section in the Miscellaneous Library and appropriated two thousand dollars additional for its use and provided for an assistant at two thousand dollars a year. The same Legislature made provisions for the building of a Temple of Justice to be erected upon the Capitol grounds which will house the Supreme Court and other judicial departments in addition to the State Library and possibly the Library Commission, thereby leaving the Historical Building for the exclusive use of the Historical Department and Archives and relieving the congested condition in the Capitol.

The State Library exists primarily for reference purposes, but uses, not inconsistent with its object, are under present policy encouraged.

We welcome the arrival of a new baby: the Philadelphia Special Libraries Council organized in October

The Pillsbury Flour Mills Co., Minneapolis, Minn is planning the organization of a special library for the use of its staff.

A chemical library is to be organized shortly by the General Chemical Co., New York.

The *National Safety News* issued weekly by the National Safety Council, Chicago, Ill. contains each week a column by the Librarian of the Council devoted to the literature of safety and allied matters.

The leading article in the *Journal of the Society of Chemical Industry* for February 15, 1919, is devoted to "The Organization of a Factory Library," referring particularly to the practice of Noble's Explosives Co., Ltd., England.

"...Most men who have really lived have had, in some shape, their great adventure. This railway is mine..."

James J. Hill's Statement upon resignation as chairman of the Board of Directors of the Great Northern Railway.

State Library of Massachusetts

Law Libraries in Massachusetts

| | |
|-------------|---|
| BARNSTABLE | Barnstable Law Library. |
| BOSTON | Boston Bar Association. Boston University Law School Library. Social Law Library. State Library of Massachusetts |
| BROCKTON | Plymouth County Law Library |
| BROOKLINE | Brookline Law Library Association. |
| CAMBRIDGE | Harvard Law School Library. Middlesex Law Library Association. |
| DEDHAM | Norfolk County Law Library. |
| FALL RIVER | Fall River Law Library. |
| FITCHBURG | Fitchburg Law Library |
| GREENFIELD | Franklin County Law Library. |
| LAWRENCE | Lawrence Bar Association |
| LOWELL | Middlesex County Law Library. |
| NEW BEDFORD | New Bedford Bar Association. |
| NEWBURYPORT | Essex County Law Library Association. |
| NORTHAMPTON | Hampshire County Law Library |
| PITTSFIELD | Berkshire Law Library (County) |
| PLYMOUTH | Plymouth County Law Library. |
| SALEM | Essex County Law Library Association |
| SPRINGFIELD | Hampden County Law Library |
| TAUNTON | Bristol County Law Library. |
| WORCESTER | Worcester County Law Library. |

The Henry L. Doherty Company, New York, in connection with its school for securities salesmen, publishes a list of books for collateral reading and indicates where such books can be obtained

True Account of a Remarkable Reference Record

A deceased aunt of a friend of the writer left among her worldly effects a book containing the questions apparently propounded to her by divers ladies and gentlemen Public Library patrons. This remarkable record kept by the dear lady in the course of her natural Library life is a true chronicle of the happenings and activities at the Library at which she was employed. It is kept with the precision of a sailor's log. Reference questions are stated, together with the time asked, description of the person by whom, purpose of the question, the answer given together with a citation of the sources of information upon which the answer is based. Toward the back of the book under the title "Reference Record—Questions Unanswered," written in a large bold hand, appear a number of questions to which answer apparently was not given. I hope at another time to give a true account of the major part of the Reference Record containing the questions which were answered, with other pertinent information as above indicated. At present I wish to cite from among those which proved too difficult for the old lady. My purpose in doing this will not be misunderstood, for as some of our convention orators in the recent bombardment stated: "It is in the interest of Library science that no customer should leave the Library unsatisfied. It is this failure of the Public Library that is the ruin of us all, and it is from this repeated ruination that there has arisen a new type of Library, a bright emblem of a noble science, a shining diadem—" but we need not eavesdrop further. It is all in the record.

I may say for the more curious, especially for those who faithfully conserve Library traditions, that this dear lady owned, though it was never learned until her decease, a copy of that rare and wonderful tome which is understood to contain a remarkable and secret account of the first union of Library manual workers, as well as a full account of the manners and demeanor of the small beast called the cockroach, and also a rare description of how to brew a certain snake poison manufactured

by Jared Bean and sampled by his editors. I refer to the "Old Librarian's Almanack." This book, I am told, was highly revered by the lady of whom I write. She read and believed every word of it. Indeed a co-worker and assistant, a spinster, and a credible witness wrote me that the Almanac was to the lady a veritable Bible. I also learn through a recent letter that the lady always spoke of the inventors who discovered the Almanac and gave it to a consuming Library world as "inspired" and also as "finders of the faith."

I also learn for the more curious that the lady's favorite parts of the Almanac were those so vividly describing the ravages and rampages of the cockroach* which is understood to have been borrowed from former writers, and which she considered an object lesson to bibliophiles and those who feed on books.

But "Returnons a nos moutons" as our former President of the A L A. has said so aptly.** I cite from the questions as written without comment, leaving that to the reader. I may say that the executioners of the will of the dear-old-lady-aunt-of-the friend-of-mine are considering offering a reward that will lead to the discovery of the answers. Thus is the foundation of philanthropy laid.

THE QUESTIONS

"Researches proving that the Edison Electric Sign bearing the advertisement 'A Medicine for the Mind' appeared over a saloon in Egypt and not over a Library. (Not in Prohibition Yearbook)

"Was the mastodon descended from the dicotolydon?

"What were Moses' ten points and why did President Wilson improve upon them?

"Who was the naval librarian on Noah's Ark? Also where can a copy of his annual report be obtained?

"Who wrote 'Cobb's Eating Foreign Sandwiches' and why?

"Information as to how to figure the ways of the decimal point in a butcher's bill?

*See the "Almanack" for May 1774, beginning "Of the Enemies of Books I especially esteem the Cockroach."

**Note: None but Presidents can enjoy the pleasure of eating in foreign languages.

"Who is the present President of the Checko Swaybacks and in what form do they exist?"

"Who was the model of the Venus di Silo?"

"Did Columbus discover the Newark Museum and find the Library therein? (To ask J. C. Dana.)

"Where can plans of hotels at Aspbury Park be secured so as to study the cost of high life?"

"At what age is a librarian best fit for standardization, decimation and certification?"

The above must show that the spirit of inquiry in the small Public Library is not so limited,* that education is expanding rurally and "duodecimally," and that the War Library Service Committee should begin preparing for the League of Nations.

J. H. F.

* See C. C. Williamson's address before the A. L. A. on the shortcomings of the small library, and Mr. Williamson chastised by J. C. Dana in the Library Journal for September 1919.

An Institute of Transport was established in England on Nov. 3, 1919, which bids fair to become prominent not only in England but throughout the world. As its name implies it is to cover the entire field of transport, including railways, waterways, tramways and roads. It is supported by men eminent in the transport field and its first president is to be Sir Eric Geddes. Its announced purpose is the scientific study of questions relating to traffic and transport and the institute is to hold monthly meetings between October and June. One of its announced plans is "To form a library of works relating to traffic and transport, and in connection therewith to acquire, sell or exchange books, works and manuscripts." By the loan of books and by grants of books it plans also to aid invention and research.

R. H. JOHNSTON.

The Ogden Public Library, Ogden, Utah, is planning to establish a department of transportation history, using for this purpose a recent gift of \$8,000, representing the unexpended balance of money given by the Southern Pacific and the Union Pacific Railroad companies for the Golden Spike Cele-

bration, held last May, in commemoration of the joining of the two roads near Ogden. The new department will include a museum containing relics of the union of the two roads and books dealing with this and other pioneer transportation events.—From Railway Age, v. 68:98; January 2, 1920.

The newly established Bureau of Coal Economics, Washington, D. C., has definite plans for a special library to cover the literature relating to coal production, distribution and consumption; labor and cost of living; mining engineering; and collateral and comparable literature in other lines of industry. Mr. C. E. Leshner, formerly in charge of coal statistics in the U. S. Geological Survey, is the head of the new Bureau and has already started a nucleus for the library. Their offices are at present in the Commercial National Bank Building.

The New York Special Libraries Association has decided to turn over the registration list, which it has maintained for several years as well as all its records relating thereto to Miss Eugenia Wallace, head of the Employment Bureau of the Y. W. C. A.

A New Publication on Filing

"Filing as a profession for women" is the title of a publication just issued by the Library Bureau, which is free to those who are interested. This 49 page booklet is intended to furnish information on the advantages of filing as a permanent and well paid vocation for women. Its distinct aim is to show the importance and value of systematic training in this very special work.

There is a rapidly increasing demand in business libraries for college women who are trained both in library work and office filing, as the contents of the files in a business office are as important and as much a part of a business library as are the books on the shelves.

Whether it be in the business or technical branch of a large public library system, the business library in a large manufacturing plant or a bank, the well trained women with an instinct for business, an imagination and a desire to help others find information on very special subjects, may make a

very great deal out of this highly interesting new type of work.

The book points out the decidedly growing necessity of augmenting college and library training with a special course such as is offered in some of the indexing and filing schools.

An intelligent woman well equipped in the best library and filing methods will be able to organize and administer an office or special library department in such a manner as to greatly enrich her own business knowledge. She will be able to develop and improve conditions in such offices and libraries and to care for this type of special reference material in a way to best serve those who seek it.

This vocation is well worth investigation on the part of those who look for new opportunities and larger remuneration for their services.

ZANA K. MILLER,
Librarian, Library Bureau.

A letter from Mrs. Sarah S. Edwards, librarian of the newly organized library of the Bureau of Government Research at the University of Texas (Austin, Texas) states: "This library is a new venture and, unless all signs fail, promises to be a success in the field of special libraries. It covers in its scope books, magazines and pamphlet material relating to federal, state, county and municipal government, both domestic and foreign. We aim to serve not only the faculty and students in our own department, but also any person in the state of Texas who is interested in the subjects which we handle."

The Library Committee of the East Palestine, Ohio, Chamber of Commerce, finding the city without any library facilities whatever, has succeeded in establishing a 500-volume branch of the Ohio State Traveling Library. This library is well selected and books are issued to citizens under the same regulations as are followed in the modern city libraries.

The committee is now at work gathering between two and three thousand volumes, given by the citizens of East Palestine, to

be used as the nucleus for a permanent library. A suitable building to house this library is one of the problems which the committee hopes to solve in the near future. A reading room, in which the best modern daily newspapers and magazines will be made available for the public, is another project receiving the time and attention of this active committee.

—Community Leadership.

A Handbook of Quantitative Analytical Chemistry

Frequently the chemist needs a method for the determination of an element—possibly in a mixture involving difficult or unusual separations—either in research or in commercial work. It is necessary to make a thorough search of the literature or to devise a new method. After the latter course has been adopted, it may be discovered that there is a good method described in some journal not readily accessible to the worker. At present there is no general reference book in which ALL the methods of procedure are systematically listed. In any one of the many excellent text-books on quantitative analysis, only the representative methods considered most important by the writer are included, and these are usually discussed in detail.

The Chemical Catalog Company, Inc., 1 Madison Avenue, New York, have just completed the arrangements for the publication of a handbook or a compendium of quantitative analytical chemistry. The author is a member of the faculty of one of the universities devoting special attention to chemistry, and has had extensive experience in applied chemistry and in chemical engineering. It is planned to include every method given in chemical literature, both in English and in foreign languages. The work will be in two volumes, one Inorganic and the other Organic. The Inorganic volume will be published first. Every journal and book likely to contain methods of quantitative analysis will be carefully searched. The material will be thoroughly indexed, not only under the elements and compounds, but also under the commercial articles in which the element is to be determined. Copious references to the original literature will be given.

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EDITORIAL

Agricultural Library Extension Service

"The Massachusetts Agricultural College Alumni Bulletin" for Jan. 24, 1920 contains an article by Charles R. Green, the librarian of the college, offering the use of the library and the aid of its collections to graduates of the Massachusetts Agricultural College. It is an experiment that will be watched with interest and is a tribute to the spirit of service which has for many years characterized the agricultural college libraries.

Years ago the agricultural colleges adopted the slogan, "If the man cannot come to the college, the college will come to the man." They entered on their extension work which has been so potent a force for good in agricultural life and endeavor. They organized fairs, county meetings, in-

stitutes, clubs, they arranged exhibits, lectures, and interested thousands directly in improving conditions of rural life. The college libraries, animated by the success of the colleges, entered also into extension work. They prepared reading lists, organized reading and story clubs, sent out traveling libraries and backed up the work of the college by extension work in behalf of organized information. Their contribution in this manner, while not often recognized because it has not been well advertised, is, nevertheless, one of the significant features of modern librarianship.

Mr. Green's plan is a further forward step in making the college library function in the every day activity of the agriculturalist. Recognizing the difficulties under which some of the college graduates must labor, the lack of proper laboratory equipment and of good literature, he says:

"Having all of these things in mind I am going to try the experiment of extending the Library Service to M. A. C. men generally. I realize that this might prove to be a costly experiment—to send agricultural publications to Connecticut, entomological books to Cape Cod, or horticultural material to Colrain, but I am willing to risk it for the benefit that might result to the men of "Old Massachusetts" If the College Library cannot spare the desired items from its equipment on the campus perhaps advice can be given concerning its easy availability. If this idea has any value or appeals to anyone we stand ready to inaugurate this "out of college but with the college" service with the first application for material.

Should this experiment be successful, it will most likely result in other agricultural libraries following suit. The thought occurs however, is not this extension service, a work that may well be considered by the state libraries? Many of these are already doing extension work in some degree, but too little is known throughout the state of their activities in this direction. Just as the state sees that everyone of school age attends some school, so the state library should aim to serve every man and woman in the state who has the desire for or need of books, particularly where local libraries do not exist or cannot meet the need.

J. H. FRIEDEL.

Agricultural Books of 1919

BY WILLIAM M. HEPBURN

Librarian, Purdue University, Lafayette, Ind.

The output of books on agricultural subjects by American publishers during 1919 was not remarkable for quantity. It was an off year in spite of the fact that the trade statistics compiled by the Publishers' Weekly seem not unfavorable, being about 20 per cent under 1918 and 10 per cent under 1917 but from 10 per cent to 30 per cent more than other years since 1910 except 1913 which it practically equalled. The number of titles credited to agriculture during 1917 was 407, including both "books" and "pamphlets", with, in this subject, very heavy emphasis on "pamphlets," for the total includes many bulletins of the federal and state Departments of Agriculture and similar publications by Colleges and Experiment Stations. In selecting the books in the list as being worthy of mention not more than one hundred titles in all were considered. It is quite possible that the compiler has overlooked some valuable titles in spite of the fact that the Publishers' Weekly, the Cumulative Book Index, proof sheets from the Library of the Department of Agriculture, the A. L. A. Book-list, publishers' lists and many other sources were carefully checked. It would seem that at least 50 or 60 per cent of the total titles listed must be "pamphlets" and this is probably a greater percentage than any other subject in the classification would show. It is understood that in the statistics of book production to appear in the Publishers' Weekly for 1920, a distinction will be made in all classes between books and pamphlets, which will greatly increase the value of these tables.

Some of the books of the year may be said to fill gaps existing in agricultural literature, such as the following:

- Harris, F. S.—The sugar beet in America. Macmillan. \$2.25.
 Fisk, W. W.—The book of ice-cream. Macmillan \$2.50.
 Hedrick, U. P.—Manual of American grape-growing. Macmillan. \$2.50.

McMahon, J. R.—How these farmers succeeded. Holt. \$1.40.

(A collection of biographical sketches of successful farmers)

Brown, N. C.—Forest products (other than lumber), their manufacture and use. Wiley. \$3.75.

Farrington, E. I.—Practical rabbit keeping. McBride. \$1.25.

Naturally the relation of agriculture to the war and reconstruction received attention:

Hibbard, B. H.—Effects of the great war upon agriculture in the United States and Great Britain. (Was published by the Carnegie Endowment for International Peace, available from the Oxford University Press. \$1.00.)

Morman, J. B.—The place of agriculture in reconstruction, a study of national programs of land settlement. Dutton. \$2.00.

Howe, F. C.—Land and the soldier. Scribner. \$1.35.

The subject of farm crops is represented by:

Buller, A. H. R.—Essays on wheat, including the discovery and introduction of marquis wheat, the early history of wheat-growing in Manitoba, wheat in western Canada, etc. Macmillan. \$2.50.

Martin, J. N.—Botany for agricultural students. Wiley. \$2.50.

Smith, J. R.—The world's food resources. Holt. \$3.50.

Dairy products are represented by:

Fredarixsen, J. D.—The story of milk. Macmillan \$1.75.

Larsen, Christian—Farm dairying. Orange Judd. \$2.00.

Samis, J. H.—Cheese making. Mendota Book Co., Madison, Wis. \$1.90.

Miscellaneous:

Bailey, L. H.—Nursery manual, a complete guide to the multiplication of plants, (a rewriting of his "Nursery book"). Macmillan. \$2.50

Ward, A. R. & Gallagher, B. A.—Diseases of domesticated birds. Macmillan. \$4.00.

Farm buildings, new and enlarged edition. Breeder's Gazette, Chicago, \$3.00.

Hood, G. W.—Farm horticulture. Lea & Febiger. \$2.50.

Recknagel, A. B.—Forest management. Wiley \$2.00.

Lochhead, Wm.—Class book of economic entomology. Blakiston. \$2.50.

Langstroth on the hive and honey bee. Ed. 20. Dadant & Sons, Hamilton, Ill. \$1.50.

Washington, George—Agricultural papers. Badger. \$1.50.

East, E. M. & Jones, D. F.—Inbreeding and outbreeding, their genetic and sociological significance. Lippincott. \$2.50.

Rural economics and sociology as usual received considerable attention from at least one publisher, The Macmillan Co. They published the following:

Arnold, J. H.—Farm management. \$1.25.

Butterfield, K. L.—The farmer and the new day. \$2.00.

Douglass, H. P.—The little town, especially in its rural relations. \$1.50.

Taylor, H. C.—Agricultural economics. \$2.50.

Here also should be included the Proceedings of the National Country Life Conference, published by the National Country Life Association, Ithaca, N. Y. \$3.00; and Quick, Herbert—The Fairview Idea; a story of the new rural life. Bobs-Merrill. \$1.50.

An interesting contribution to agricultural bibliography and history is "Topical studies and references on the economic history of American agriculture", by Prof. L. B. Schmidt of Iowa State College, published by McKinley, Phil., \$1.50.

Those especially interested in the Country Church problem may be referred to the following titles published within the year:

Bricker, G. A.—The church in rural America. Standard Pub. Co., Cincinnati, O. \$1.00.

Brunner, E. D. S.—The country church in the new world order. Association Press. \$1.00.

Gill, C. O. & Pinchot, G.—Six thousand country churches. Macmillan \$2.00.

Jackson, H. E.—The community church. Houghton. \$2.00.

This subject was not included in the general list published in 1918, so that the above should be supplemented by the three following published before 1919:

Groves, E. R.—Using the resources of the country church. Association Press. 1917. \$1.75.

Groves, E. R.—Rural problems of today. 1918. Association Press. \$1.00.

Morse, R.—Fear God in your own village. 1918. Holt. \$1.30.

The demand for elementary books for secondary and high-schools and for the new

vocational schools has been great and the publishers are doing their best to supply the demand. Among such books may be mentioned.

Stimson, R. W.—Vocational agricultural education by home projects. Macmillan. \$2.50.

Gohrs, J. H.—Principles of agriculture for high schools. Macmillan. \$1.40.

Nolan, A. W.—A year in agriculture with plans for home projects. Row, Peterson & Co. \$1.20.

Ivins, L. S.—Garden crops, production and preservation. Rand, McNally. \$1.25.

Waters, H. J. & Elliff, J. D.—Agricultural laboratory exercises and home projects adapted to secondary schools. Ginn. \$0.96.

Cook, M. T.—Applied economic botany based upon actual agricultural and gardening projects. Lippincott. \$1.60.

Davis, M. T.—Horticulture; a text book for high schools and normals. Lippincott. \$1.75.

Prices given in these lists are from latest available sources but are not guaranteed.

It is a difficult matter to estimate current agricultural books because of the absence of good reviews. The *Book Review Digest* yields a few titles of books of general interest, rural sociology, gardening and the like, but many titles included have only descriptive notes based on the preface and table of contents. Few agricultural journals bother with book reviews. The *Agricultural Index* prints some reviews that are mainly descriptive not critical. The notes appended to titles in the *A. L. A. Booklist* are valuable but are not reviews.

Nature (London) gives good critical reviews of some American books on agriculture and the related sciences and these are well indexed in the volume index. The *Experiment Station Record* contains many reviews but these are difficult for a busy librarian to consult because they are not differentiated from the other items under each subject. It would be a great help if the book reviews could be separated from the other items and placed at the end of each section, or if in the table of contents they could be marked in such a way that they could be located easily; also, if in the annual index they could be listed by author and title under the general heading "Book Reviews".

A Reading List on Saccharin

COMPILED BY E. D. GREENMAN

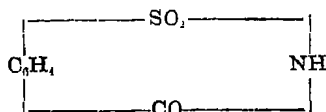
*With an Introduction by Dr. C. J. West, Information Department,
Arthur D. Little, Inc., Cambridge, Mass.*

Sugar is a valuable and necessary food. It is one of the members of the carbohydrate class of foodstuffs, which are easily and quickly converted into energy in the human body. This is why candy warms one so quickly in cold weather, and why one craves sweet things when cold and when doing physical work. Cane sugar, with which we are most familiar, is specially valued as a food because it produces the sensation we term sweetness. Milk sugar (lactose) is hardly sweet at all. Glucose (corn syrup) is somewhat sweet, but it does not compare in taste with cane sugar.

A few generations ago cane sugar (sucrose) in the form of a dry, white, granular powder was unknown. People had maple syrup, molasses, sorghum syrup, and other sugar syrups. Later the process of crystallizing and refining cane sugar was invented, and its use became very general. While many people used it because it added a certain taste and flavor to the food, they were at the same time adding considerably to the food value of the materials eaten. There is no relation between the food value of a substance and the property of sweetness. Many substances that are not sweet have the same food value as sugar, while other substances are sweet but have no food value at all.

Both because of the actual food value of cane sugar and of our acquired taste for things sweet, the recent sugar shortage has caused a great deal of discomfort to the American public. It was perhaps the logical thing to turn to the one material which offers sweetness without food value, namely, saccharin.

Chemically saccharin is known as o-benzoic sulfimide, and the chemical picture is—



It was discovered by Remsen and Fahl-

berg of John Hopkins University in 1879. Fahlberg tells the following story regarding the discovery of its peculiar sweet property.

After a day in the laboratory, he washed his hands in the usual way before going to dinner. During the meal he was very much surprised to find that the bread had a peculiar sweetish taste. He inquired of the housewife as to the cause of this. Not receiving a satisfactory answer from her, he then discovered that it was not the bread that tasted sweet, but his hands. Upon his return to the laboratory, he went through all of his glassware until he found the beaker which had this peculiar sweet substance in it. He traced this material back to its source and discovered the method he used in its preparation. The next question was to test its physiological action; he found that the material was excreted unchanged by the animal body, and further, that it apparently had no harmful effects upon the animals or upon himself.

The basis of the preparation of saccharin is toluene. This is heated with fuming sulfuric acid, giving a mixture of sulfonic acids. After removing the excess of sulfuric acid with calcium carbonate, the acids are changed into their chlorides, one of which is crystalline and easily removed. The liquid chloride is treated with ammonia, and the resulting product oxidized. Finally, treatment with hydrochloric acid gives the desired product, saccharin. Various modifications of this process are fully covered by patents. Saccharin is a white powder which melts at 200°C (392°F.), evolving an odor resembling that of bitter almonds. Weight for weight, pure saccharin is about 550 times as sweet as sugar. It is not very soluble in water (1 part in 28 parts of boiling water), alcohol, glycerol, or ether. It is soluble in ammonia and the alkali hydroxides. These soluble salts may be obtained solid, and are sold as soluble saccharin.

The first factory for the manufacture of saccharin was established in New York in 1884. This product had a sweetness about 300 times that of sugar. In 1891, manufacturing conditions were so improved that the product was 550 times as sweet as sugar. Since then large quantities have been manufactured, both here and abroad.

The first question that naturally arises is the physiological effect of saccharin. Much work has been done along this line, and while most of it is contradictory, certain facts seem to stand out as being established. The Referee Board of Consulting Scientific Experts made a report (United States Department of Agriculture, Report No. 94) in which they state:

"(1). Saccharin in small quantities (0.3 gram per day or less) added to the food is without deleterious or poisonous action and is not injurious to the health of normal adults, so far as is ascertainable by available methods of study.

"(2). Saccharin in large quantities (over 0.3 gram per day and especially above 1 gram daily) added to the food, if taken for considerable periods of time, especially after months, is liable to induce disturbances of digestion

"(3). The admixture of saccharin with food in small or large quantities has not been found to alter the quality or strength of the food. It is obvious, however, that the addition of saccharin to food as a substitute for cane sugar or some other form of sugar must be regarded as a substitution involving a reduction of the food value of the sweetened product and hence as a reduction in its quality."

This report is apparently accepted by the English as authoritative because we find the Board of Trade of the English House of Commons asking in 1918, regarding the use of saccharin and the following reply:

"I am advised that there is no evidence for the suggestion that the use of saccharin as a sweetening substance is likely to prove injurious to health. The investigations made in 1911 for the United States Department of Agriculture have established the harmlessness of saccharin when taken in ordinary quantities. Doses up to 5 grams daily, that is 15 times the strength of the ordinary tablet, were found during long periods to cause no disturbance whatever of digestion or detriment to health in normal adults."

The reply goes on to say, however:

"A recent Report of the Royal Society states 'that evidence is lacking as to wheth-

er saccharin is equally harmless to children.'"

And also—

"That it is in no sense a food but merely a flavoring agent."

The conclusion would seem to be that sugar should be given to children while saccharin may be quite safely taken in moderate quantities by healthy adults in tea, coffee and mineral waters.

In view of the findings of the Referee Board as mentioned above, the Secretary of the United States Department of Agriculture issued on April 29, 1911, the following order (Food Inspection Decision 135):

"Saccharin has been used as a substitute for sugar in over thirty classes of foods in which sugar is commonly recognized as a normal and valuable ingredient. If the use of saccharin may be continued it is evident that amounts of saccharin may readily be consumed which will, through continual use, produce digestive disturbances. In every food in which saccharin is used, some other sweetening agent known to be harmless to health can be substituted, and there is not even a pretense that saccharin is a necessity in the manufacture of food products. Under the food and drugs act articles of food are adulterated if they contain added poisonous or other added deleterious ingredients which may render them injurious to health. Articles of food are also adulterated within the meaning of the act, if substances have been mixed and packed with the foods so as to reduce or lower or injuriously affect their quality or strength. The findings of the Referee Board show that saccharin in food is such an added poisonous or other added deleterious ingredient as is contemplated by the act, and also that the substitution of saccharin for sugar in foods reduces and lowers their quality.

"The Secretary of Agriculture, therefore, will regard as adulterated under the food and drugs act foods containing saccharin which, on and after July 1, 1911, are manufactured or offered for sale in the District of Columbia or the Territories, or shipped in interstate or foreign commerce, or offered for importation into the United States."

This attitude of the United States Government is but a reflection of the attitude taken by a large number of the Governments in Europe. For instance, in 1890 the Italian Government decreed:

"That the introduction or production within the kingdom of saccharin and saccharin products was forbidden."

In 1910 Turkey ruled that saccharin

might be imported into Turkey only by licensed chemists and in quantities of not more than 50 grams at one time. Likewise one might quote similar laws from Germany, Austria, Spain, Greece and other countries.

The question has been brought very clearly before the American public by the recent suit brought by the United States Department of Agriculture against the Monsanto Chemical Company of Saint Louis, on the claim of harmfulness of the product.

The government based its prosecution against saccharin on the fact that saccharin has no food value. Its use would enable bakers, restaurant keepers and others to sell food, with just the same taste as before, but lacking in the food value to the extent of the amount of sugar such articles would normally contain. Then, too, the government contends that there is a possibility that more than the allowable three-tenths of a gram per day would be used by many individuals and a large part of the population might ultimately have its digestion impaired.

On the other hand, the evidence produced by the Monsanto Company covered not only its use by many laymen, both in good health and in such diseases as diabetes, in which sugar is dangerous, where saccharin had been used for years, and in some cases the greater part of a life time without ill effects, but also extensive testimony of many prominent physicians who had used it widely with patients, both adults and infants, in cases where they found sugar harmful and saccharin harmless, and that saccharin was in fact a condiment and not a drug, as it had no medicinal value or effect.

They also presented the testimony of army men who, while in France and England during the war, along with millions of others of the inhabitants of those countries, used saccharin almost entirely, instead of sugar, without any ill effects being observed. This testimony was backed by the laboratory studies of several eminent workers whose experiments on animals offered conclusive support to the claim of its harmlessness to man.

The jury disagreed, standing 7 to 5 for conviction. This failure to reach an agreement in the case is regarded as a moral vic-

tory for the supporters of saccharin. It is to be regretted if the government is not upheld in this matter. Even though the question of harmfulness cannot be proved, it is still very evident that we are dealing with a material that is not a food and that will enable unscrupulous manufacturers to deceive the public. With the high cost of living, many people, probably a large percentage of the population, are not getting more than just enough nourishment. To permit the substitution of a drug or other material for so valuable a food as sugar is to deprive these people of a part of their nourishment, and that should not be. Owing to the large number of references to foreign journals which may not be readily accessible, abstracts of these references have been indicated by volume and page number when found in chemical abstracts; Journal of the Society of Chemical Industry, and the Experiment Station Record.

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- Boll. chim. farm.*—*Bolletino chimico farmaceutico.*
- Bull. Assoc. Chim. Sucr.*—*Bulletin de l'association des chimistes de sucrerie et de distillerie.*
- Bull. soc. chim. Belg.*—*Bulletin de la societe de chimie de Belgique.*
- Bull. Soc. Chim.*—*Bulletin de la societe chimique de France.*
- Chamb. Jr.*—*Chambers Journal.*
- C. A.*—*Chemical Abstracts.*
- Chem. Soc. Proc.*—*Chemical Society (England) Proceedings.*
- Chem. Zentr.*—*Chemisches Zentralblatt.*
- Chem. Ztg.*—*Chemiker-Zeitung.*
- Compt. Rend. Acad. Sci.*—*Comptes rendus hebdomadaires des seances de l'Academie des sciences. Paris.*
- E. S. R.*—*Experiment Station Record.*
- Gazz. chim. Ital.*—*Gazzetta chim. Italiana.*
- Giorn. farm. chim.*—*Giornale di farmacia di chimica.*
- Intern. Kongress für ang. Chem.*—*International Congress for applied Chemistry.*
- Jr. Assoc. Off. Agr. Chem.*—*Journal of the Association of official agricultural chemists.*
- Jr. Biol. Chem.*—*Journal of biological chemistry.*
- J. I. E. C.*—*Journal of Industrial and Engineering Chemistry.*
- J. Phys. Chem.*—*Journal of Physical Chemistry.*
- J. S. C. I.*—*Journal of the Society of Chemical Industry.*
- K. Landtbr. Akad. Handl. och Tidskr.*—*Kungl. Landbruks- och Akademiens Handlingar och Tidskrift. Stockholm, Sweden.*
- Munchen med. W.*—*Munchener Medizinische Wochenschrift.*
- Pharm. Post*—*Pharmaceutische Post.*
- Pharm. Weekblad.*—*Pharmaceutische Weekblad.*
- Rev. Internat. falsif.*—*Revue Internationale falsification.*
- Rev. of Rev.*—*Review of Reviews.*
- Schweiz. Wochschr.*—*Schweizerische Wochenschrift für Chemie und Pharmacie.*
- Sci. Amer.*—*Scientific American.*
- Univ. Bonn Ann.*—*University of Bonn Annals.*
- Wochenschr. f. Brau.*—*Wochenschrift für Brauerei.*
- Z. Oester. Apoth. Ver.*—*Zeitschrift aller gemeinen oesterreichischen Apotheker-Vereine.*
- Z. ges. Brauw.*—*Zeitschrift für das gesamte Brauwesen.*
- Zeits. Ver. Deutsch. Zuckerind.*—*Zeitschrift des Vereins deutschen Zuckerindustrie.*
- Ztschr. Untersuch. Nahr. Genussmtl.*—*Zeitschrift für Untersuchung der Nahrungs- und Genussmittel.*
- Ztschr. angew. chem.*—*Zeitschrift für angewandte Chemie.*

ABBREVIATIONS USED.

- Amer. Jr. Pharm.*—*American Journal of Pharmacy.*
Ann. chim. analyt.—*Annals de chimie analytique et revue de chimie analytique.*
Ann. chim. appl.—*Annali di chimica applicata.*
Ann. Falsif.—*Annales des falsifications. Paris.*
Apoth. Ztg.—*Apotheker Zeitung.*
Arch. chem. u. Mikros.—*Archiv für Chemie und Mikroskopie.*
Arch. f. Hygiene.—*Archiv für Hygiene.*
Arch. med. exp.—*Archives de medecine experimentale.*
Ber.—*Berichte des Untersuchungsamtes.*
Biol. Zentr.—*Biedermanns Zentralblatt für Agrikulturchemie.*
Biochem. Ztschr.—*Biochemische Zeitschrift.*